

## Interesting Field Notes

In an effort to share some of the interesting natural history observations made during research cruises, we have requested that the Chief Scientists on each cruise leg document some of the more interesting catches made during the survey. Here are some interesting observations made during our most recent bottom trawl survey.

### Sculpins and Other Spiny Creatures

At Norfolk Canyon (offshore from Chesapeake Bay), we encountered extraordinarily high densities of northern sea robin (*Prionotus carolinus*). A 30-minute tow in the area yielded a catch of 13,770 northern sea robins weighing in excess of 2800 lbs. This was the largest tow of northern sea robins in the last ten years for the spring survey. When the catch was dumped into the sorting checker, it was described as a giant mass of spines and grunting. One of the cruise volunteers asked what the difference between the northern sea robin and longhorn sculpin was, and whether they were related. The answer was, yes, they are taxonomically related. Both species are spiny and vibrate when agitated. When you've handled lots of them, you can actually tell them apart by the noise that they make without looking at the actual fish. On the practical side, the sure way to tell the two species apart is to look down at your hand – if the spines go through the glove and into your hand, it's probably a sea robin, if the spines go through your glove, into your hand, then back out through the other side of your hand, then it's probably a longhorn sculpin!

There are actually several species of sculpin encountered on the survey. We encountered several short-horned sculpin (*Myoxocephalus scorpius*) at an inshore station off the Scotian Shelf. The shorthorn is the largest western Atlantic member of the sculpin family, and one of the fish sampled exceeded 16 inches in length. This was an unusual catch not because shorthorn sculpin are rare in the Gulf of Maine, but because shorthorns are normally inshore of the area sampled during the survey.

### What was that bright red fish?

Another unusual catch this spring was a red sea raven. The sea raven, *Hemitripterus americanus*, was once considered a sculpin, but has recently been placed in its own taxonomic family (Hemitriptoridae). Sea ravens are usually varying shades of brown, but also have two very common color morphs. The first color morph is yellow, and this can be bright, solid, almost a startling yellow. This yellow form is most often encountered offshore, especially on Georges Bank. The other, more unusual color morph is red. The red color morph appears to be consistently very close to shore in the Gulf of Maine. Divers from Maine to Massachusetts often report seeing a bright red fish that seems to fit the description of one of the dangerous tropical scorpion fishes. The "bright red" part usually throws ichthyologists off the scent as sea ravens do not normally fit that description. Like the shorthorn sculpins, these red ravens tend to be distributed inshore in shallow waters, and are not normally encountered on our survey. It was a thrill to catch one on the survey, and the fish was saved for our Woods Hole aquarium, where it will be interesting to see whether it retains the red color, as the offshore yellow fish seem to do.

### What's that Shad doing out there?

There are two species of shad, American (*Alosa sapidissima*) and hickory (*Alosa mediocris*), regularly captured during offshore bottom trawl surveys. A less commonly encountered species is the gizzard shad (*Dorosoma cepedianum*). During the 2003 Spring Bottom Trawl survey, we encountered a single individual off the coast of New York City. This species is one of the largest members of the herring family (up to 20 inches), but is generally smaller than the American shad. The gizzard shad is primarily a freshwater fish, though it occasionally enters brackish waters. The fish was taken near the mouth of the Hudson River which helps explain the unusual catch.

### Barndoor Skates Continue to Increase

The dramatic size of the barndoor skates (*Dipturus laevis*) make them a conversation piece whenever they come aboard the ship. Contrary to an influential scientific paper published in Science magazine that proposed that this species was “close to extinction,” our surveys have documented a consistent increase in both their numbers and size range when compared to catches taken during spring surveys 10-20 years ago. Stratified estimates of abundance and biomass from the survey were a critical information source used in the decision not to list barndoor skate under the Endangered Species Act.

	Total # caught	Length range (cm)
1973	3	31-90
1983	1	41
1993	5	51-60
2003	63	19-132

These skates can grow up to five feet in length, and larger individuals require a significant wrestling effort to sample. Their unusually smooth skin, dark/speckled underside coloration and unique pointed nose make this a species that is easy to identify. Preferring smooth mud or rocky bottom terrain, they can be found in depths up to 100 fathoms as the Georges Bank portion of this survey verified. The majority of the skates were taken at stations on the U.S. side of the Hague line with concentrations in the southeast section of Georges Bank and in the “mud hole” area in waters south of the Great South Channel. Only 3 stations on the Canadian side of the Hague line produced barndoor skate catches.

In addition to indexing the abundance of commercially important fish and shellfish species, Center surveys provide critical information on a number of ecologically important species. Taxonomists in the Center's Ecosystems Survey Branch are always interested in examining unusual specimens encountered by fishermen. Contact John Galbraith if you pull up something that you are interested in learning more about!

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